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Comments on Jeff Sachs' presentation in the session
"Emerging Market & Financial Crises"

When Jeff invited me to discuss his presentation today, I made what turned out to be a not very credible precommitment. I told his office that for me to be a discussant I need to have Jeff's paper at least a couple of days in advance and warned that I will not show up in case I did not receive the paper in advance. However, here I am, even though I did not receive his paper! So much for the credibility of my precommitment. But to be fair to Jeff and to excuse my own failure to keep to my precommitment, I should say that Jeff sent me copies of his recent paper on alternative approaches to financial crises in emerging markets, and his paper with Steve Radelet on Asia Reemerging. I also read his comment on the Thai crisis in the Financial Times of July 30, 1997. Jeff also sent me a fax summarizing the points he was going to make today. These, as well as my reading of his paper with Tornell and Velasco in the Brookings Papers (Sachs et al. (1996)), together were enough for me to attempt to say something coherent about the four points raised by Jeff in his fax to me last Friday. Let me turn to these in order.

First and foremost is Jeff's identification of sources of recent financial market crises, which he rightly distinguishes from fiscal-indiscipline-based debt crises of the 1980's. These sources are overvalued real exchange rates, weak and undersupervised banking sectors, and financial market liberalization in the context of poor exchange rate and banking policies. The analytical and empirical foundations for this identification were laid in the Brookings paper.

The analytical model of that paper is a stylized version of an implicitly coordinated action by a number of identical investors, all of whom take their investment out of a country, if they anticipate a sufficiently large devaluation of its currency in the future. Whether or not a devaluation will take place depends on the level of reserves relative to the total stock of investment, and if it does take place, its size depends on how sound the fundamentals are. There are two possibilities. In the first, fundamentals are healthy enough that even in the event of devaluation its size is below what would induce investors to take out their money. Knowing this, no investor takes out her money, and as such there is no capital outflow, and as long as reserves are positive no devaluation takes place and there is no crisis. In the second, the fundamentals are so unhealthy, that were devaluation anticipated to occur, it would be large enough to induce capital outflow. In this case there are two further possibilities. First is the situation in which the reserves exceed any potential capital outflow so that the government can maintain the exchange rate even if outflows were to occur. Again, realizing this, investors do not take out their money and

devaluation does not take place. The second is the situation in which the reserves do not exceed potential capital outflows. Then, there are two self-fulfilling expectations equilibria: in one, no investor anticipates a devaluation and keeps her money in. With no outflow, no devaluation takes place and the expectations are realized. In the other, everybody expects a devaluation, takes her money out, reserves run out, and devaluation takes place, once again leading to the realization of expectation. Thus in this model for a crisis to occur the necessary, though not sufficient, conditions are a sufficiently unhealthy fundamentals and a level of reserves below that of potential capital outflow.

Sachs et al. use this model to formulate their empirical model in terms of a dependent variable which is a crisis index that measures the pressures on the foreign exchange market and a set of explanatory variables consisting of a real exchange rate index, a measure of lending boom to proxy the vulnerability of the financial system, and two dummies, of which one characterizes the adequacy of reserves relative to broad money stock and the other proxies the strength of the fundamentals based on the real exchange rate and the measure of lending boom. They find that during the six months of 1995 following the December 1994 Mexican collapse, an impressive 71 percent of the variation in the crisis index was explained by the movements in the real exchange rate, the lending boom and the dummies.

Before turning to the issue whether these results are useful for signaling the likelihood of a crisis and for devising policies to prevent it, let me comment briefly on the analytic and empirics of the study of Sachs et al. First of all, as one

who is decidedly not a macroeconomist, and to whom models of all the warring cults of contemporary macroeconomics appear simplistic and too remote form reality, I find the models of self-fulfilling expectations yielding multiple equilibria particularly implausible. For example, in Sachs' analytical framework, all agents are identical, know the model that drives the fundamentals as well as the level of reserves, and there are no unanticipated shocks. As such, with weak fundamentals and inadequate reserves, there is no way in which agents can envisage devaluation not occurring and hence, the probability that a crisis will not occur because all agents coordinate their expectations on the state of no devaluation, can only be zero! On the other hand, if one were to assume that all agents know that a significant devaluation is bound to occur, but each agent believes that he or she can take her money out before it occurs, then either we are led to the situation of an immediate devaluation because all agents are identical and, as such, everyone will try to take out her money at the same time thus bringing about the crisis immediately or we are led to introduce heterogeneity among agents in terms of either their beliefs or knowledge about the model driving fundamentals or both. A third alternative is to abandon rationality on the part of investors.

Indeed, even while invoking his analysis in the Brookings paper, in his Financial Times piece, Jeff seems to impute ignorance and possibly irrationality to investors when he says "investors rarely understand that the short-run currency appreciation gives an incorrect reading of future relative prices. Since the capital inflows must be repaid in the long run

by increased real exports, the exchange rate is most likely to have to depreciate in real terms to service the capital inflows." But abandoning rationality as the primary behavioural characteristic of investors and other agents also abandons any hope of doing policy relevant analysis--after all, meaningful and rational rules of behaviour are likely to be few while there are an infinite number of irrational departures from them. In any case, the currency exchange rate could well overshoot its long run value in the short run for reasons well understood by the investors. Besides, the relevant overshooting of the exchange rate by definition is, not with respect to its past value but relative to its future value in a counterfactual long run. As such, it is often possible to provide plausible assumptions about the future evolution of the economy in which there is short-run appreciation relative to the past but not so relative to the future. Thus investors need not necessarily be wrong if they view the short-run appreciation as giving them a correct reading of the long-run value of the real exchange rate.

Whether or not one attaches much analytical significance to the theoretical model of Sachs et al., it could be argued that their empirical results are too impressive to be dismissed lightly. However, there are some econometric issues. The explanatory variables such as the real exchange rate, the dummies describing the fundamentals, and the investment boom are not truly exogenous. Jeff and his coauthors make no attempt to address this issue econometrically. Leaving the econometric issues aside, if one believed that Jeff's crisis index indeed captures the pressure on foreign exchange markets, and took seriously the apparently impressive explanation of its variance

of the index by Jeff's regressions, still one has to reckon with Richard Cooper's apposite comment. He said quite seriously, and I quote,

> "If the Brookings papers circulate as widely as many of us hope that they do, the financial community and governments around the world will discover this equation and build their expectations around it. In future there will not be any financial crises of the type that occurred in early 1995, because governments will be sure to keep the variables above or below the thresholds indicated in this paper, and the private sector, observing that governments have done so, will behave properly" (Cooper (1996), p. 204).

If Dick is right, then for providing the world with a simple equation and methodology, the use of which will surely prevent any future financial crisis from occurring, Jeff and his coauthors should be given the Nobel Memorial Prize in economics!

Be that as it may, the fact remains that Rudy Dornbusch predicted the Mexican crisis before it happened. It is also claimed that the IMF and senior U.S. Treasury officials had warned the Mexican authorities privately of the looming crisis. Even if the Mexican authorities did not act on the information, why did the private agents wait until December to pull out? Similarly, one could have inferred, using Jeff's empirical model, given the vulnerability of the Thai financial system, its exchange rate appreciation and loan boom etc., that a crisis was bound to occur. Indeed, two distinguished economists, Larry Lau

and Anne Krueger of Stanford University, both told me that they had said publicly after the Mexican crisis that Thailand was the next in line. Yet private agents did not act until recently. Should we conclude, as Richard Cooper did, from the refusal of the financial community to believe the warnings or the analysis underlying them that it is wrong to use models of rational expectations? The usual assumptions of such models including those of self-fulfilling expectations are that, conditional on information available to them, all agents form rational expectations using not only the same, but also the correct model of the world. Perhaps Dick was right in rejecting such models. Perhaps not. After all, to suggest abandoning an internally consistent and coherent model without specifying a better alternative is not exactly useful advice. A more useful, if not easily implemented advice, is to relax some of the stringent assumptions by recognizing heterogeneity among agents both with respect to the information available to them and with respect to their preferences. By appropriately aggregating their preferred action to determine market outcomes, one may be able to build a better model to take to the data. In other words, specifying a better micro foundation, based on rationality of private agents, is the first task.

I referred earlier to the claim that the IMF and the World Bank recognized the possibility of a crisis and privately advised the governments of Mexico accordingly. Presumably they gave similar advice to the Thai government. There are a number of problems in evaluating the claim and its implications. First, if the claim is indeed valid, and if it is true that both governments did not act on the advice and brought about a crisis

that could have been averted, then the moral hazard implications of the subsequent bail-outs orchestrated by the IMF are extremely worrying. Second, if either institution had publicly announced their advice, it is very likely that it would have precipitated the crisis immediately,, even though the advice presumably is a warning of a possible crisis in the future. Third, if the advice is based on information that is privy to the two institutions but not publicly available, then making that information, rather than the advice, public would have been a better course of action. Fourth, if the advice is not based on any private information held by the two institutions, we come back to the issue discussed earlier: why did not the private agents assess the risk of a crisis to be significant as the two institutions apparently did? Fifth, and finally, what should one make of a very recent IMF study proposing an early warning system based on indicators with threshold values so that

> "When an indicator exceeds a certain threshold value, this is interpreted as a warning 'signal' that a currency crisis may take place within the following 24 months. The variables that have the best track record within this approach include exports, deviations of the real exchange rate from trend, the ratio of broad money to gross international reserves, output, and equity prices" (Kaminsky et al. 1997, p. 1).

Given the consistent refusal of private agents in the financial market, and apparently policy makers, to act on the basis of warnings of economists, will these indicators be taken any more

seriously? If they are, will they help in preventing a crisis or just bring it about earlier?

Jeff's second point relates to preventative measures such as exchange rate flexibility, avoidance of dollarization of the domestic banking system, capital adequacy and other supervisory standards and prudential limits on short-term foreign borrowing. I agree with most of what Jeff has said on these--in particular with his opposition to capital control and his view that capital adequacy has to be judged on the basis of the risk characteristics relevant to Banks in each country and that the Basle capital adequacy norm can be taken certainly as guides, possibly as minimum but certainly not as a maximum of capital adequacy irrespective of country specificities. On exchange rate flexibility, it is clear that the real exchange rate, unlike the nominal exchange rate, is not a policy instrument that can be directly manipulated. Besides, there could be divergence of views as to the relevant basket of non-traded goods and services whose price relative to a basket of traded goods that it is to measure. It is most often assumed without discussion that the nominal exchange rate is the only channel by which the real exchange rate could be influenced. Certainly it is the most direct channel, but not the only one. In principle, domestic taxes cum subsidies on non-traded goods are also means by which the real exchange rate can be influenced. Without further analysis, one cannot pronounce either on their feasibility or their distortionary effects relative to the use of the nominal exchange rate.

Jeff's third point was his analysis of the recent Southeast Asia crisis. Other than reiterating my earlier point that the

vulnerability of Thailand was apparently seen by many observers long before the crisis exploded and their perception made no impact on financial markets, I have little to add. On the issues of corruption or human rights, democracy etc., I find it ironic and hypocritical that the World Bank and bilateral aid donors, who were playing footsie with corrupt and undemocratic governments and dictators such as the late Mobutu not so long ago, have suddenly seen religion. I am not even persuaded that as a proportion of GDP, corrupt transactions are any larger in developing countries than they are in developed countries. Maybe there are many more instances of petty corruption in the developing countries but those in industrialized countries, though fewer in number, certainly are larger in value. Dr. Mahathir may be paranoid, but that does not mean that protectionism is not the primary force driving the industrialized countries to raise issues of corruption and human rights to demand linkage of labour and environmental standards, human rights etc. to market access.

Jeff's last point is on the future of the East Asian Miracle. The much over-rated study by the World Bank entitled East Asian Miracle has given currency to the notion that East Asian performance is somehow a miracle. The Oxford Universal Dictionary (Third Edition, 1955) states the common meaning of the word 'miracle' as "an act exhibiting control over the laws of nature, and serving as evidence that the agent is either divine or is specially favoured by God." It adds a hyperbolic meaning as "an unusual achievement or event". I am sure the World Bank is not suggesting that the East Asians are the chosen people! Of

course since few, if any, developing countries had as sustained and as rapid a growth as East Asia during this period, the achievement of East Asia is certainly unusual. The spectacular growth of East Asia is not a miracle but simply a consequence of their spectacular rates of accumulation of physical and human capital. Whether the latter should be deemed miraculous is debatable. But one thing (and perhaps this is the only thing) is likely to be more or less universally agreed: the policy framework of East Asia, in particular its emphasis on outward orientation and external market performance, and on the accumulation of human capital provided the incentives not only for rapid accumulation of physical capital and, more importantly, for its efficient use. Thus, one does not have to look beyond the neoclassical explanations based on fundamentals (i.e. rapid accumulation of factors and a framework for their efficient use) to understand East Asian growth. There is no mystery or miracle.

I agree with Jeff in taking a much more optimistic view of the future of East Asian Growth than Krugman. In fact, I had expressed this view in an article I wrote a year ago with M. G. Quibria of the Asian Development Bank for the Asian Times.

Lastly, I find the recent empirical literature on convergence profoundly uninteresting. For me it is irrelevant whether Bangladesh, China or India are on a path that will eventually lead them to converge to the growth path of the industrialized countries. What matters to the welfare of the Chinese or Indians or Bangladeshis is their own growth rate and not convergence. Far more relevant and interesting issue than convergence is whether the process of integration of these economies to the world economy through trade, capital and

technology flows will accelerate their growth.  Such acceleration will be beneficial whether or not it leads to convergence.

# References

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